# 2017 Performance and Progress Report

## State of Idaho Nonpoint Source Management Program

**State of Idaho**
**Department of Environmental Quality**
April 2018

1410 North Hilton | Boise, ID | www.deq.idaho.gov

## Acknowledgments

The Idaho Department of Environmental Quality would like to acknowledge all who helped develop this report, including federal and state agencies, project sponsors, and the many individuals whose efforts have helped reduce nonpoint source water pollution throughout the state.

Cover photo: South Fork Boise River at Arrowrock Reservoir.

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# Contents

## List of Figures



## List of Tables

# Acronyms and Abbreviations

| | |
|---|---|
| BAG | basin advisory group |
| BMP | best management practice |
| BRO | Boise Regional Office |
| CRO | Coeur d'Alene Regional Office |
| DEQ | Idaho Department of Environmental Quality |
| EPA | US Environmental Protection Agency |
| GRTS | grants reporting and tracking system |
| IDFG | Idaho Department of Fish and Game |
| IFRO | Idaho Falls Regional Office |
| LRO | Lewiston Regional Office |
| MOU | memorandum of understanding |
| NPS | nonpoint source |
| NRCS | Natural Resources Conservation Service |
| PRO | Pocatello Regional Office |
| Section 303(d) (§303(d)) | Section 303(d) of the Clean Water Act |
| Section 319 (§319) | Section 319(h) of the Clean Water Act |
| SRF | State Revolving Fund |
| SWCD | soil and water conservation district |
| TFRO | Twin Falls Regional Office |
| TMDL | total maximum daily load |
| WAG | watershed advisory group |

# Section 1 Overview

This document summarizes the State of Idaho Nonpoint Source Management Program's performance and progress for the period from December 1, 2016, through November 30, 2017. The Department of Environmental Quality (DEQ) administers the program for Idaho.

## 1.1 Introduction

Clean Water Act §319(h) requires the US Environmental Protection Agency (EPA) make an annual determination of satisfactory progress in meeting the milestones of each state's nonpoint source (NPS) management plan. To assist EPA in making this determination, DEQ provides an annual report that assesses the program's performance and progress toward meeting the goals and milestones in Idaho's plan.

### Idaho's Nonpoint Source Program

Congress established the national NPS program in 1987 when it amended the Clean Water Act with §319, "Nonpoint Source Management Programs." States were given the federally funded mandate to address NPS water pollution by (1) conducting statewide assessments of their waters, (2) developing NPS management programs to address identified impaired or threatened waters, and (3) implementing EPA-approved, federally funded NPS management programs to remediate and prevent NPS pollution.

In accordance with the congressional mandate, DEQ places strong emphasis on ensuring that §319 funds are directed to on-the-ground projects that prevent, reduce, or eliminate NPS pollution in Idaho's surface water and ground water. Idaho's NPS Program has funded hundreds of on-the-ground projects since 1998. The majority of these projects were designed to remediate and prevent NPS pollution, thereby resulting in measurable pollution reduction.

### The State Revolving Fund and the NPS Program

Starting in 2011, the NPS Program began working closely with the State Revolving Fund (SRF) Program to leverage SRF wastewater loans, providing funding to offset lower levels of §319 assistance.

In general, the SRF funding protocol allows the interest rate charged on a traditional SRF wastewater project loan to be adjusted to accommodate an NPS project's financial needs. Projects funded in this manner are then administered by DEQ's §319 grant staff and have essentially the same administrative conditions as a project funded with a traditional §319 grant. A sponsorship agreement is required for projects receiving funds from the SRF. The funds for the NPS project result from borrowing against a community's SRF loan; the interest rate on the loan is lowered so that the rate payers are held harmless (i.e., their rates are not affected by the cost of the NPS effort).

Throughout this report, projects funded from the SRF are identified alphanumerically, beginning with the letters "WW."

## Scope of the Program

DEQ managed 40 active projects (Table 1) in 2017. Each project is described in a subgrant agreement established between DEQ and the project sponsor. Project sponsors may include state agencies, counties, municipalities, nonprofit organizations, or private individuals.

**Table 1. Nonpoint source funding summary for projects active and closed during 2017.**

| Sub-grant | Project Name | Sponsor | Subgrant Issue Date | Subgrant Expiration Date | §319 Grant Amount | Total Spent (through 11/30/17) | Balance (as of 11/30/17) |
|---|---|---|---|---|---|---|---|
| K129 | Wolf Lodge Creek Restoration | River Design Group | 03/21/16 | 12/31/16 | $99,770.00 | $93,769.77 | $6,000.23 |
| S458 | Cold Springs Creek Riparian Restoration | Elmore SWCD | 08/13/12 | 12/31/16 | $40,476.00 | $40,359.00 | $117.00 |
| S459 | Rock Creek BMPs | Idaho SWCD | 08/13/12 | 12/31/16 | $95,764.00 | $81,542.46 | $14,221.54 |
| S460 | Potlatch River Phase—IV | Latah SWCD | 08/13/12 | 12/31/16 | $207,302.00 | $207,301.51 | $0.49 |
| S471 | Station Creek Watershed Improvement | Franklin SWCD | 10/17/12 | 12/31/16 | $125,008.00 | $80,335.91 | $44,672.09 |
| S490 | Fish Creek Restoration | Twin Lakes Improvement Association | 08/05/13 | 05/31/17 | $84,000.00 | $84,000.00 | $0.00 |
| S491 | Potlatch River Watershed Management Plan—Phase 5 Implementation | Latah SWCD | 08/06/13 | 05/31/18 | $207,674.00 | $182,279.81 | $25,394.19 |
| S493 | Middle Snake-Payette Clean Water—Phase 2 | Payette SWCD | 08/07/13 | 12/31/17 | $202,729.00 | $202,729.00 | $0.00 |
| S494 | Owyhee Restoration Incentive Program | Owyhee Watershed Council | 10/01/13 | 10/01/17 | $132,750.00 | $123,238.50 | $9,511.50 |
| S495 | PBJ Division | Bear Lake SWCD | 09/06/13 | 12/31/16 | $123,857.37 | $43,127.07 | $80,730.30 |
| S496 | Wide Hollow Erosion Reduction | Oneida SWCD | 09/10/13 | 12/31/17 | $249,750.00 | $238,684.75 | $11,065.25 |
| S520/542 | Alder Creek Road BMP Implementation Project | Benewah County/Benewah SWCD | 04/08/16 | 12/31/17 | $235,990.00 | $235,990.07 | -$0.07 |
| S521 | Continued Canyon County BMP Program | Lower Boise Watershed Council | 08/18/14 | 12/31/18 | $250,000.00 | $174,999.47 | $75,000.53 |
| S522 | Weiser Flat Wetlands Project—Phase III | Weiser River SCD | 08/26/14 | 12/31/18 | $94,106.00 | $86,559.27 | $7,546.73 |
| S523 | Upper Weiser River Bank Stabilization | Adams SWCD | 08/28/14 | 12/31/18 | $190,796.00 | $50,471.30 | $140,324.70 |
| S525 | Cocolalla Lake Wetlands Restoration | Ducks Unlimited | 09/29/14 | 12/31/18 | $96,938.00 | $96,938.00 | $0.00 |
| S528 | Stauffer Creek Project | Bear Lake SWCD | 10/24/14 | 12/31/17 | $186,361.20 | $135,029.45 | $51,331.75 |
| S529 | 39/39A Water Quality Project | Balanced Rock SWCD | 02/06/15 | 12/31/17 | $54,526.00 | $48,976.00 | $5,550.00 |
| S530 | Wimpey and Pratt Creek Restoration | Trout Unlimited | 02/25/15 | 12/31/17 | $250,000.00 | $204,875.30 | $45,124.70 |
| S531 | Teton Creek Restoration Project—Phase 4 | Friends of the Teton River | 12/15/15 | 12/15/18 | $103,100.00 | $103,100.00 | $0.00 |
| S532 | Lower Payette River TMDL Implementation Project—Phase 4 | Gem and Squaw Creek SWCD | 01/04/16 | 12/31/18 | $165,809.41 | $151,198.71 | $14,610.70 |
| S534 | Owyhee Restoration Incentive Program | Owyhee Watershed Council | 02/15/16 | 02/15/19 | $153,012.00 | $20,000.00 | $133,012.00 |
| S535 | Addressing Temperature Issues in Three Mile Creek | Palouse-Clearwater Environmental Institute | 02/15/16 | 01/30/18 | $90,064.06 | $83,182.61 | $6,881.45 |
| S536 | Cove Streambank Restoration and Off Stream Watering Project | Caribou SWCD | 02/15/16 | 02/15/19 | $174,423.00 | $23,684.00 | $150,739.00 |
| S537 | Tom Beall Creek Restoration Project | Nez Perce SWCD | 02/19/16 | 12/31/18 | $30,500.00 | $17,496.18 | $13,003.82 |
| S540 | Upper Blackfoot AFOs | Caribou SWCD | 04/01/16 | 04/01/19 | $130,916.00 | $54,860.28 | $76,055.72 |
| S545 | Thomas Fork AFOs Waste Containment | Bear Lake SWCD | 05/01/16 | 12/31/19 | $178,869.00 | $17,886.00 | $160,983.00 |
| S547 | South Fork Snake River Bank Stabilization | Trout Unlimited | 11/21/16 | 11/30/17 | $250,000.00 | $167,621.50 | $82,378.50 |
| S548 | Mud Creek/Silo Creek Water Quality Project—Phase II | Balanced Rock SWCD | 11/15/16 | 11/14/19 | $81,000.00 | $65,200.00 | $15,800.00 |
| S549 | Washington Creek Culvert Replacements | Clearwater SWCD | 11/15/16 | 11/14/19 | $250,000.00 | $0.00 | $250,000.00 |
| S550 | Upper Bear River Streambank Stabilization | Bear Lake Regional Commission | 12/15/16 | 12/15/19 | $82,100.00 | $2,250.00 | $79,850.00 |
| S551 | Western Camas Prairie Culvert Replacement | Idaho SWCD | 12/20/16 | 12/20/19 | $184,925.00 | $9,641.85 | $175,283.15 |
| S552 | SF Palouse River TMDL Implementation | Palouse-Clearwater Environmental Institute | 12/07/16 | 12/31/19 | $103,687.00 | $0.00 | $103,687.00 |
| S553 | Wimpey and Pratt Creek Restoration Project—Phase II | Trout Unlimited | 01/01/17 | 12/30/20 | $250,000.00 | $0.00 | $250,000.00 |
| S554 | North Fork Payette River Watershed Improvement Project | Valley SWCD | 02/01/17 | 02/01/20 | $114,050.00 | $11,405.00 | $102,645.00 |
| S555 | Middle Eighteenmile Creek Habitat Improvement Project | Lemhi SCD | 03/01/17 | 05/30/19 | $250,000.00 | $0.00 | $250,000.00 |
| S564 | Lower Payette River TMDL Implementation Project—Phase 5 | Gem SWCD | 10/13/17 | 10/12/20 | $151,089.00 | $0.00 | $151,089.00 |
| S566 | Mica Creek | Kootenai-Shoshone SWCD | 10/11/17 | 06/30/18 | $44,340.00 | $0.00 | $44,340.00 |
| S571 | Fernan Lake Phosphorus Reduction FY17 | Kootenai Environmental Alliance | 10/20/17 | 10/20/20 | $29,911.01 | $13,139.65 | $16,771.36 |
| S572 | Middle Bear River Project | Caribou SWCD | 11/01/17 | 10/30/20 | $220,905.00 | $22,090.00 | $198,815.00 |

## Assessing Program Performance

DEQ operates under the goals and objectives incorporated in the 2015 *Idaho Nonpoint Source Management Plan*, which provides guidance for developing an annual work plan required to effectively administer the program (DEQ 2015). Work plan tasks for the fiscal year reported are presented in section 1.2.

## Framework of the Program

NPS Program functions include the following:

- Implementing watershed plans that target meeting TMDLs for pollutants and require adhering to drinking water, source water protection, and ground water management plans developed for the watershed
- Targeting compliance with water quality standards
- Evaluating the successful implementation of projects proceeding under their respective work plans and approved watershed plans, through water quality and various forms of effectiveness monitoring

## Program Emphasis and Focus

Most program-managed projects focus on reducing NPS pollution associated with agriculture and grazing practices. Other nonpoint sources of pollution the program has invested resources to address include the following:

- Fisheries
- Forestry
- Mining
- Transportation
- Urban and rural stormwater

## Determining Pollutant Load Reductions

DEQ requires project sponsors estimate reductions of sediment, phosphorous, and nitrogen loads resulting from their implementation of BMPs at the start and at the completion of their project. Most projects take place in close proximity to a particular water body. A project's pollutant load reduction estimate can be added to load reductions resulting from other projects within the watershed to determine the cumulative load reduction achieved within the entire watershed.

## Providing Technical Support

Idaho's NPS Program provides technical support through the following actions:

- Facilitating and coordinating implementation of the *Idaho Nonpoint Source Management Plan* (DEQ 2015)
- Developing and working to advance new technical approaches aimed at improving surface water and ground water quality
- Promoting partnerships, interagency collaboration, environmental education, and information transfer
- Ensuring consistency of base-level implementation activities addressed in TMDLs

- Providing training on how to complete a project application, an invoice, and a project final report
- Managing §319 funds in accordance with standard accounting and reporting practices

### Public Participation

Public participation is an important component of the NPS Program that is mainly achieved by interacting with watershed advisory groups (WAGs) and basin advisory groups (BAGs) in accordance with Idaho Code §39-3601. Both WAGs and BAGs are required to evaluate and recommend actions necessary for improving water quality across the state.

In addition, the NPS Program works to coordinate activities with local, state, tribal, and federal agencies. Their support is essential to close the feedback loop described in the 2015 *Idaho Nonpoint Source Management Plan*, project-by-project, within the major river basins in the state.

## 1.2 2017 Nonpoint Source §319 Grant Work Plan

NPS Program tasks are defined in terms of "outputs."

#### Task 1: DEQ State Office Administration

| | |
|---|---|
| Output: | Maintain a process for soliciting proposals for projects seeking to address water quality problems related to nonpoint sources; conduct public outreach; oversee program activities; track grant expenditures to ensure compliance with program requirements and federal grant conditions. |
| Milestone: | As needed, July 1, 2017–June 30, 2018 |
| Estimated cost: | $125,932 |
| Staffing level: | 1.09 FTE |

#### Task 2: Develop Procedure and Guidance Documents

| | |
|---|---|
| Output: | Maintain procedure and guidance documents in place to support new and ongoing program implementation efforts. |
| Milestone: | As needed |
| Estimated cost: | $11,553 |
| Staffing level: | 0.10 FTE |

#### Task 3: Revise Memoranda of Understanding (MOUs) with Designated Management Agencies

| | |
|---|---|
| Output: | Revised MOUs. |
| Milestone: | On a schedule agreed to with EPA |
| Estimated cost: | $103,981 |
| Staffing level: | 0.90 FTE |

### Task 4: Program Implementation

| | |
|---|---|
| Output 4A: | Collaborate with partners to implement NPS projects in priority watersheds. |
| Milestone: | July 1, 2017–June 30, 2018 |
| Output 4B: | Implement the program in a manner consistent with the goals and objectives of the Nonpoint Source Management Plan, Strategic Plan, and Performance Partnership Agreement. DEQ encourages monitoring be performed to assess improvements to water quality. On a predetermined schedule, program evaluations are performed to assess the effectiveness of implementation activities and to determine when corrective action is needed. |
| Milestone: | July 1, 2017–June 30, 2018 |
| Output 4C: | Support the Idaho Water Quality Monitoring and Management Conference. |
| Milestone: | February 2018 |
| Estimated cost: | $220,670 |
| Staffing level: | 1.91 FTE |

### Task 5: Evaluate Nonpoint Source Projects

| | |
|---|---|
| Output: | Perform on-site evaluations at a minimum of 50% of all open, and a pre-determined number of closed, projects; assess contractor performance and maintenance of existing BMPs. |
| Milestone: | Annually, May–October |
| Estimated cost: | $72,786 |
| Staffing level: | 0.63 FTE |

### Task 6: Coordinate and Implement Joint Activities of the NPS and Water Pollution Control Loan (SRF) Programs, per Established Protocols

| | |
|---|---|
| Output: | Leverage SRF-generated funding to implement projects that meet the respective program criteria. |
| Milestone: | Annually |
| Estimated cost: | $6,932 |
| Staffing level: | 0.06 FTE |

### Task 7: Provide Technical Support and Information Transfer on Implementation (Watershed-based) Plans

| | |
|---|---|
| Output: | Support watershed-based implementation and planning efforts. |
| Milestone: | As requested |
| Estimated cost: | $13,864 |
| Staffing level: | 0.12 FTE |

### Task 8: Prepare the NPS Program Performance and Progress Report

| | |
|---|---|
| Output: | Submit final report to EPA. |
| Milestone: | March 2018 |
| Estimated cost: | $21,952 |
| Staffing level: | 0.19 FTE |

### Task 9: Meet the Requirements for Entering Data into the EPA Grants Reporting and Tracking System (GRTS)

| | |
|---|---|
| Output: | Enter required data into GRTS. |
| Milestone: | Annually, by February 15 |
| Estimated cost: | $11,553 |
| Staffing level: | 0.10 FTE |

### Task 10: Maintain the Idaho Nonpoint Source Management Plan

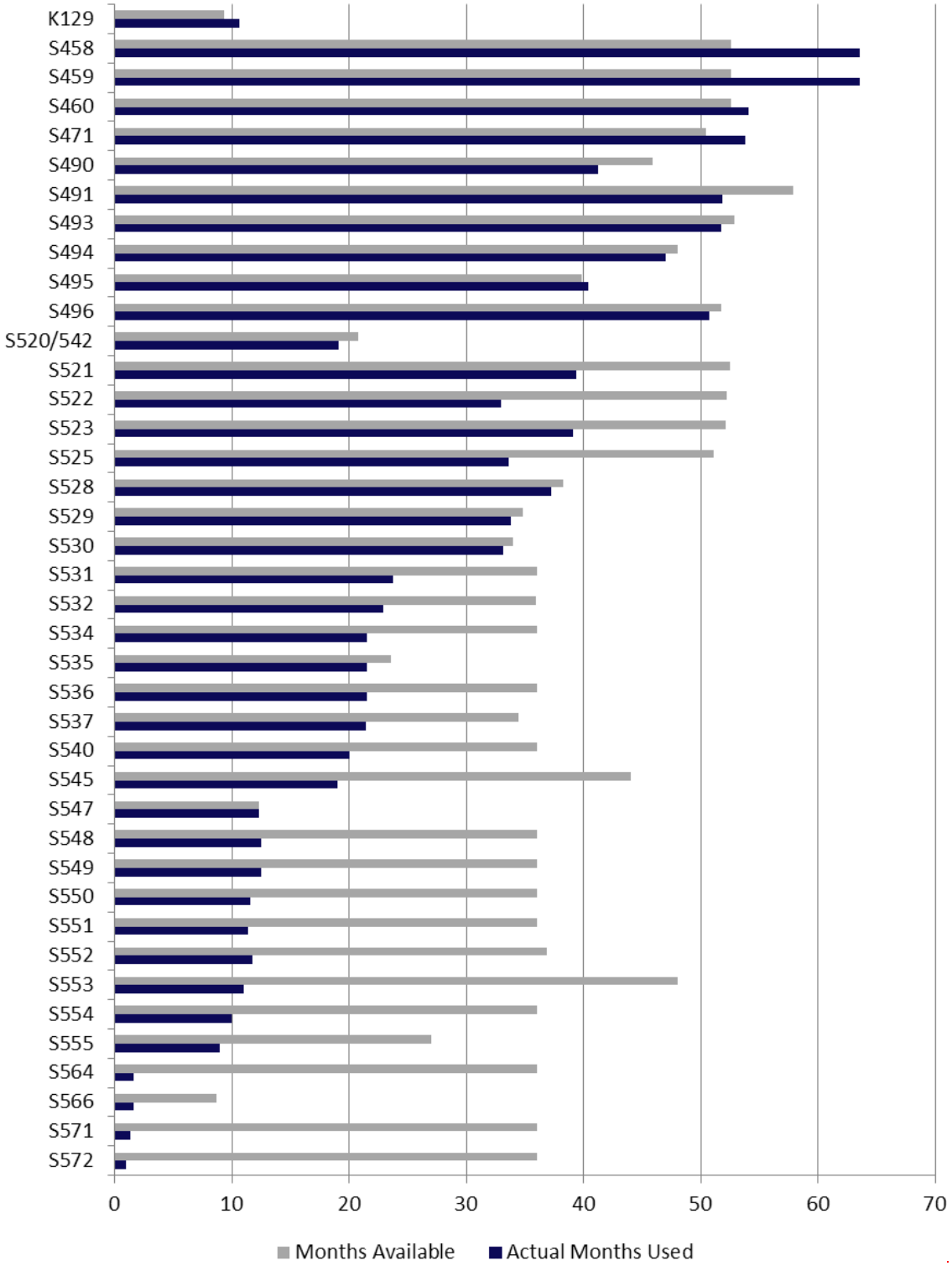
| | |
|---|---|
| Output: | Make necessary updates to the NPS Management Plan and submit to EPA. |
| Milestone: | As needed |
| Estimated cost: | $10,398 |
| Staffing level: | 0.09 FTE |

### Task 11: Surface Water Quality Management

| | |
|---|---|
| Output: | Support §319 Program goals and objectives by developing water quality standards, conducting assessments, and completing the biennial Integrated Report. |
| Milestone: | Ongoing |
| Estimated cost: | $399,779 |
| Staffing level: | 3.66 FTE |

## 1.3 Time and Budget Utilization

Figure 1 compares the number of months work has been underway on each active project to the amount of time the project had at the outset to have its work completed. Figure 2 compares the amount of funding that has been expended (through November 30, 2017) on each active project to the amount of funding that was granted to the project at the outset.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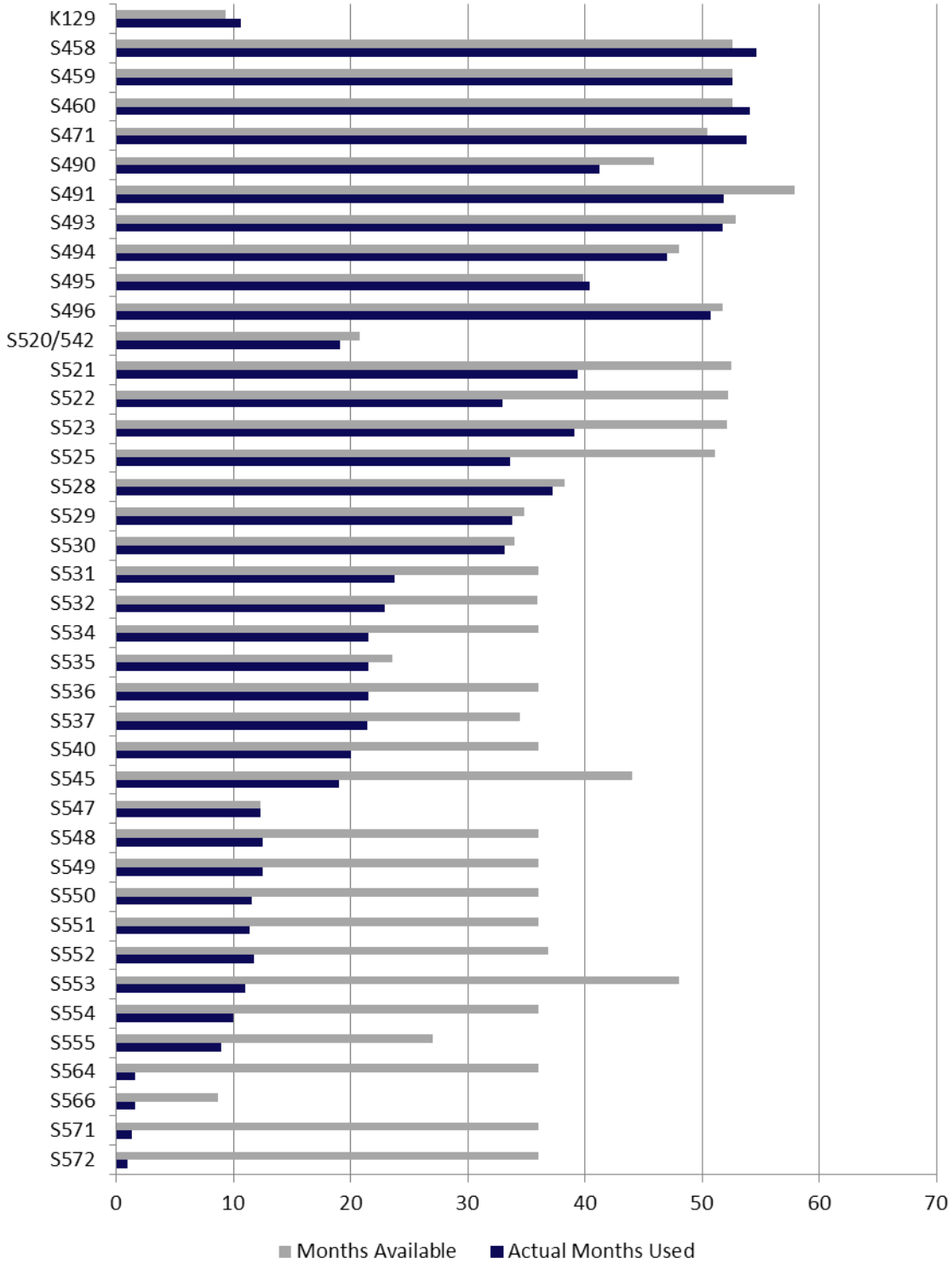



**Figure 1. Active projects, time used, and total time available. The blue bars represent the total number of months the project has been underway. The gray bars represent total months available for project completion. (Note: Active projects are any projects funded in federal grant years 2012–2017, inclusive.)**

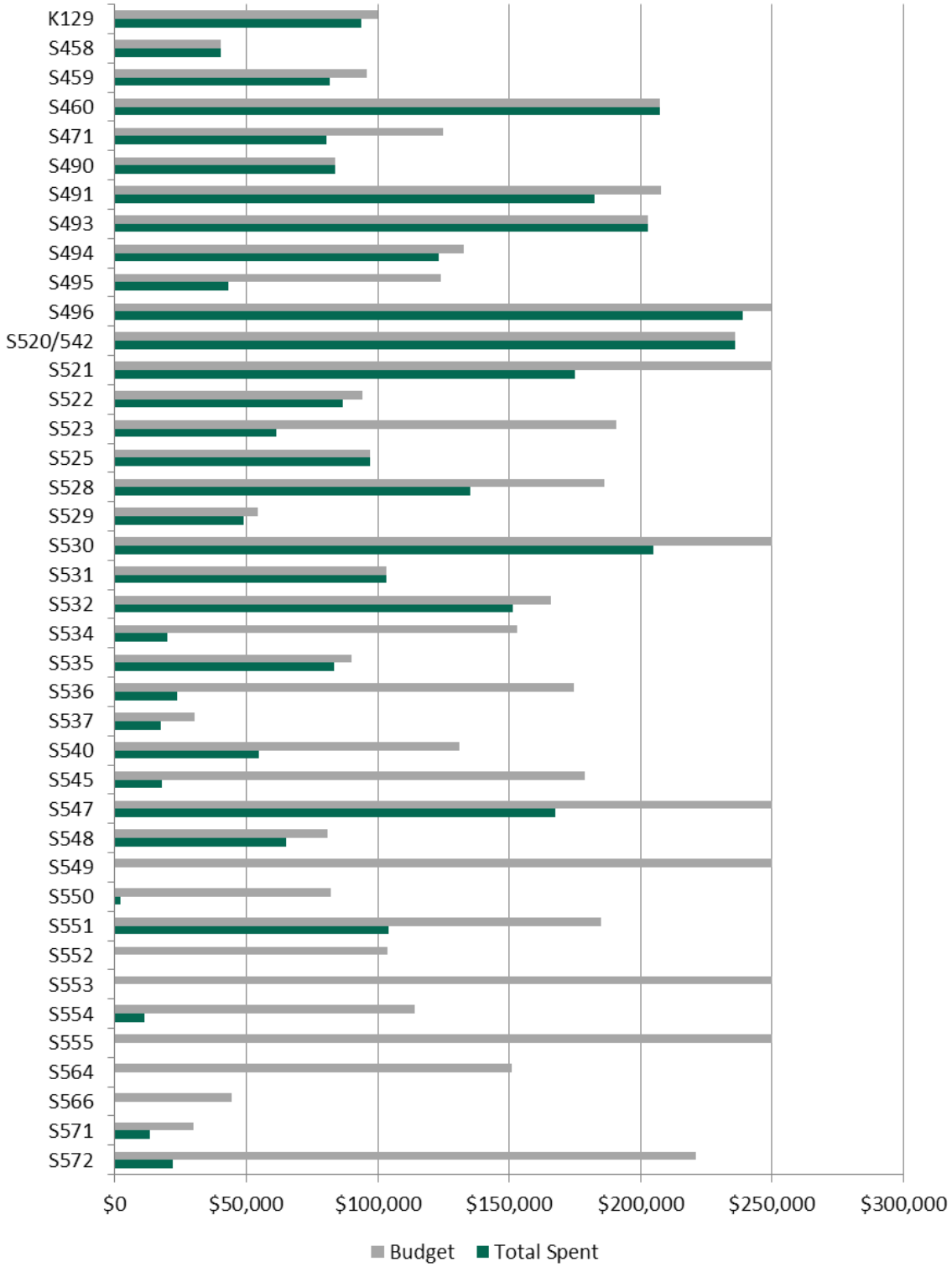



**Figure 2. Budget usage by active projects. The gray bars represent the total federal funding granted to each project. The green bars show the amount spent by each, through November 30, 2017.**

# Section 2 Project Field Evaluations—2017

This section includes summaries of the project field evaluations DEQ performed in 2017. Section 3 follows with a summary of each completed evaluation. The full report on each field evaluation is available at the DEQ State Office.

## 2.1 Introduction

In 2017, DEQ managed 40 active projects across the state (Figure 3). Of these, 11 were determined to be complete and were closed out. Field evaluations were completed on 28 projects (Figure 4).

## 2.2 Field Evaluation Process

The field evaluation process begins with a review by DEQ staff of the project file record, including the subgrant agreement. Next, DEQ arranges a visit to the job site to review any work that is underway or completed, and to assess whether the project complies with the terms of the agreement.

## 2.3 Results

Table 2 lists and briefly describes all projects that were field-evaluated during 2017.

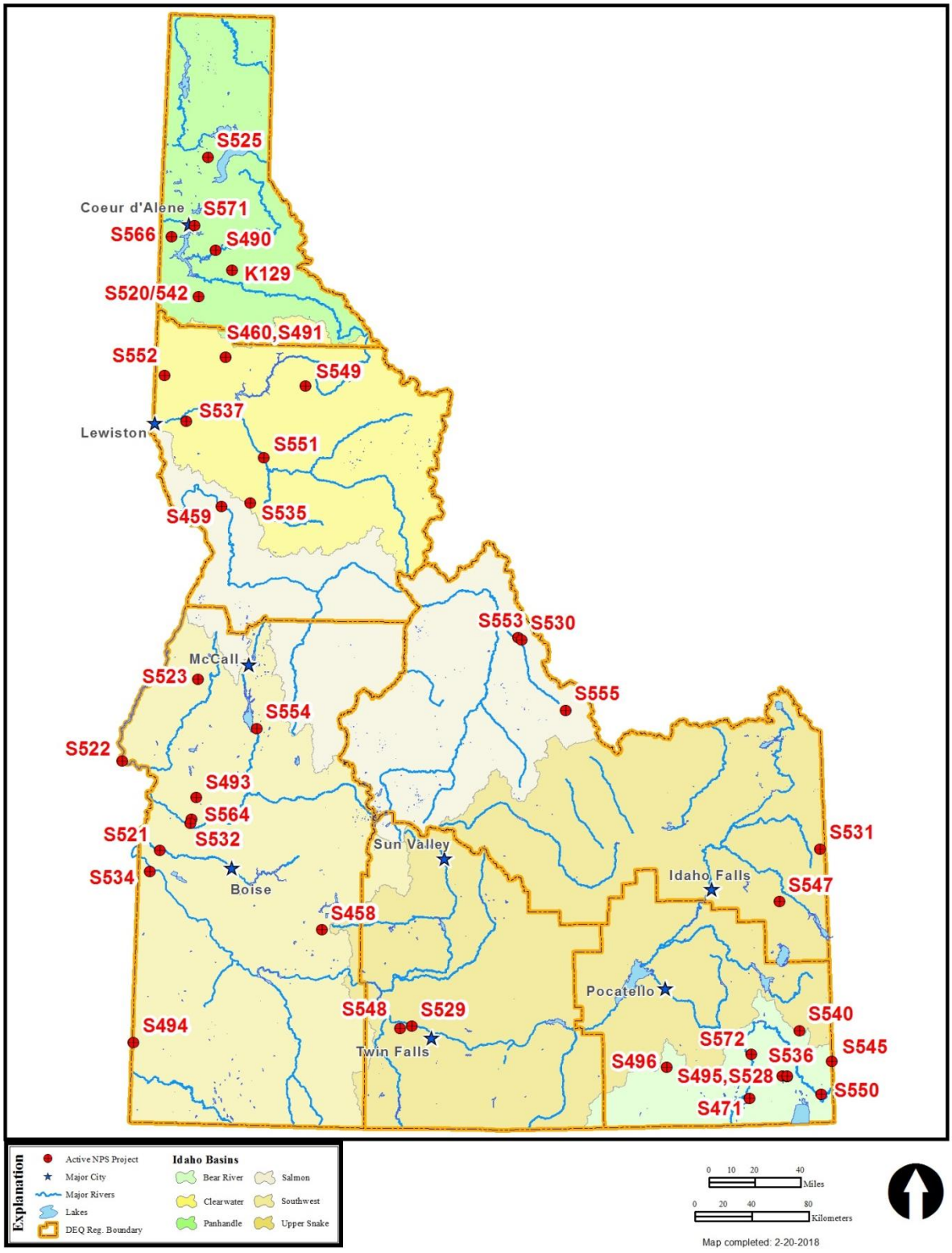



**Figure 3. Active or recently closed nonpoint source projects, as of November 30, 2017. For project information, see Table 1.**

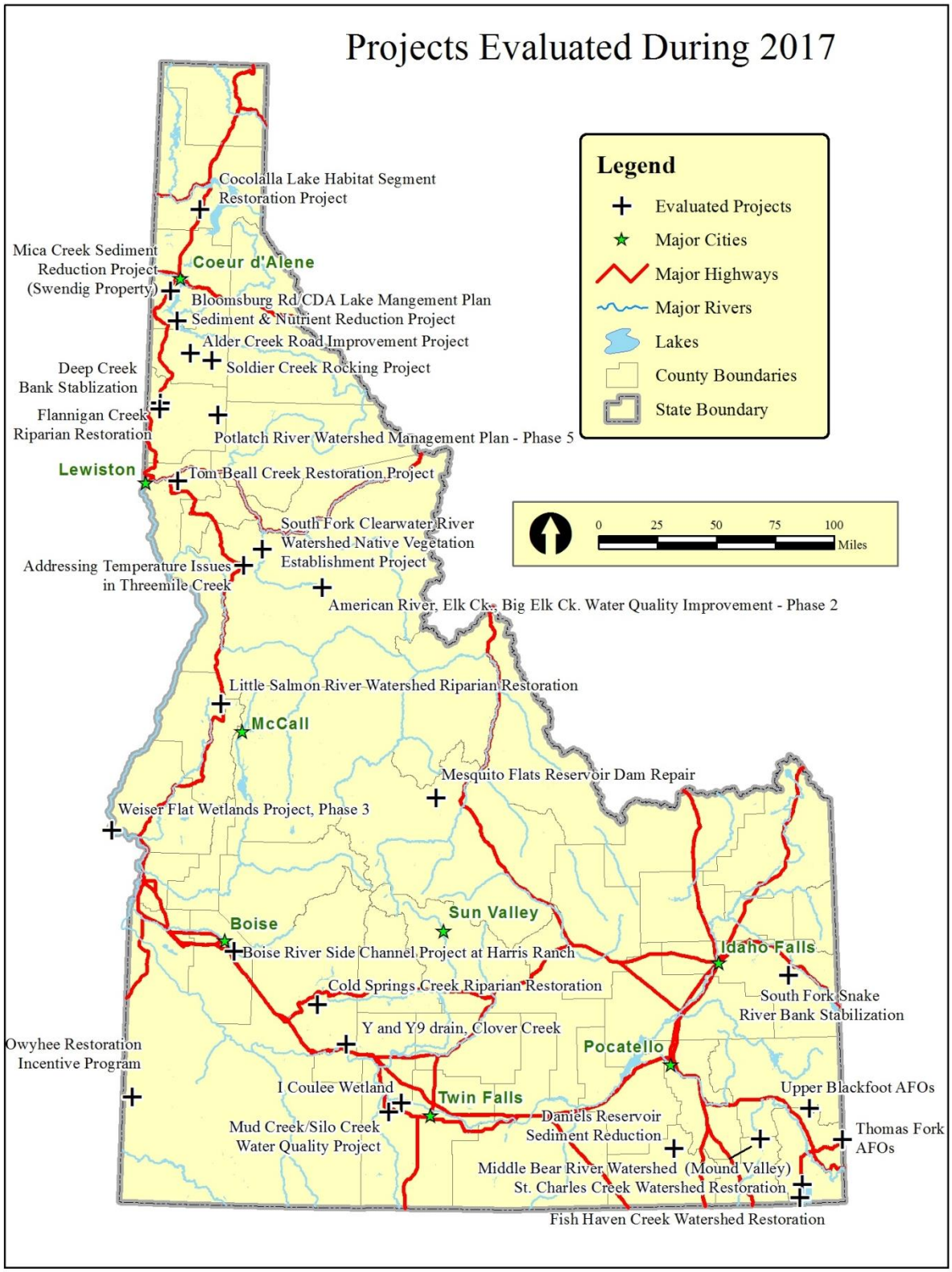



**Figure 4. Nonpoint source projects evaluated during 2017. For project information, see Table 2.**

**Table 2. Projects field-evaluated during 2017.**

| Sub-grant | Project Name | Project Description | Category[a] | DEQ Region[b] |
|---|---|---|---|---|
| S168 | Y and Y9 Drain, Clover Creek | This project eliminated a major irrigation drain that discharged into §303(d)-listed Clover Creek, a major tributary to the §303(d)-listed Snake River. | AG | TFRO |
| S182 | Deep Creek Bank Stabilization | The purpose of the project was to reduce erosion and stabilize approximately 1,900 feet of streambank by resloping and installing approximately 28,500 square feet of variable riparian buffer. | AG | CRO |
| S183 | Soldier Creek Rocking | The goal of this project was to reduce the sediment load in Soldier Creek, a major tributary to the St. Maries River. | T | CRO |
| S189 | St Charles Creek Watershed Restoration | The goal of the project was to reduce nitrate and phosphate in St. Charles Creek, a tributary to Bear Lake and the Bear River in southeastern Idaho. | AG | PRO |
| S209 | Flannigan Creek Riparian Restoration | Project work targeted reductions in sediment, bacteria, nutrients, and temperature. | AG | LRO |
| S232/104 | Boise River Side Channel Project at Harris Ranch | The goal of this project was to improve water quality by re-establishing a functioning riparian corridor. | SW | BRO |
| S273 | Mosquito Flats Reservoir Dam Repair | This project replaced an undersized and deteriorated culvert with a new, properly sized culvert. | AG | IFRO |
| S335 | Fish Haven Creek Watershed Restoration | The goal of the project was to replace an undersized box cement culvert on Fish Haven Creek. | SW | PRO |
| S385 | I Coulee Wetland Project | The goal of this project was to reduce sediment and *E. coli* loads to the river by 45%–60% and 40%–55%, respectively. | AG | TFRO |
| S394 | South Fork Clearwater River Watershed Native Vegetation Establishment Project | Multiple private landowners partnered with DEQ on this project to improve water quality by reducing the sediment load and temperature in the South Fork Clearwater River. | AG | LRO |
| S402 | Daniels Reservoir Sediment Reduction | The goal of the project was to reduce the amount of sediment being discharged into nearby water bodies by constructing sediment basins, terraces, and livestock watering systems. | AG | PRO |
| S406 | American River, Elk Creek, Big Elk Creek Water Quality Improvement—Phase II | BMPs were installed to reduce sediment, nutrient, bacteria, and temperature loads. | AG | LRO |
| S433 | Little Salmon River Watershed Riparian Restoration | This project protected and restored native riparian habitat along the Little Salmon River and its tributary, East Fork Goose Creek. | AG | BRO |
| S444 | Mud Creek/Silo Creek Water Quality Project | This project involved constructing a series of sediment retention ponds. | AG | TFRO |
| S458 | Cold Springs Creek Riparian Restoration | The main goal of the project was to maintain and improve water quality in Cold Springs Creek. | AG | BRO |
| S491 | Potlatch River Watershed Management Plan—Phase 5 Implementation | BMPs were selected to address a multitude of habitat and water quality issues and address water quality concerns associated with nonpoint source pollution. | AG | LRO |
| S498 | Mica Creek Sediment Reduction Project (Swendig Property) | This project removed collapsed vegetation from the channel and 250 feet of bank, reshaped and stabilized the bank, and replanted the affected area with willows. | AG | CRO |
| S520/542 | Alder Creek Road Improvement Project | This project resurfaced 2.7 miles of road with new base and top rock and installed eight new culverts. | T | CRO |
| S522 | Weiser Flat Wetlands Project—Phase III | This project directed irrigation water from fields through a constructed wetlands system to reduce the amount of phosphorous, sediment, and nitrate in the water before entering the Snake River. | AG | BRO |
| S525 | Cocolalla Lake Habitat Segment Restoration Project | This project will improve water quality in Fish Creek and Cocolalla Lake by decreasing sediment and nutrient loads, removing pollutants discharged into the wetlands, and recharging the shallow aquifer to extend and cool the perennial flow in Fish Creek. | AG | CRO |
| S534 | Owyhee Restoration Incentive Program | This project included piping approximately 4,000 linear feet of open irrigation delivery ditch from the diversion on Pickett Creek to an existing pivot system. | AG | BRO |

| Sub-grant | Project Name | Project Description | Category[a] | DEQ Region[b] |
|---|---|---|---|---|
| S535 | Addressing Temperature Issues in Threemile Creek | This project focused on planting riparian buffers of native trees and shrubs to shade the creek and reduce the solar load to the creek. | AG | LRO |
| S537 | Tom Beall Creek Restoration Project | This project implemented BMPs on 1 mile of riparian area and 0.25 acres of wetland and focused on numerous fish habitat and water quality issues. | AG | LRO |
| S538 | Bloomsburg Road/Coeur d'Alene Lake Management Plan Sediment and Nutrient Reduction Project | The goal of this project was to improve the road surface and drainage on 1.5 miles of Bloomsburg Road on the Coeur d'Alene Tribe Reservation. | T | CRO |
| S540 | Upper Blackfoot AFOs | The goal of this project was to reduce the amount of sediment, phosphorus, and nitrogen in the main stem Blackfoot River, Meadow Creek, Grave Creek, Grizzly Creek, and Blackfoot Reservoir. | AG | PRO |
| S545 | Thomas Fork AFOs | The goal of this project was to reduce the amount of nutrient and sediment discharged to Preuss Creek and the Bear River from nearby ranching operations. | AG | PRO |
| S547 | South Fork Snake River Bank Stabilization | The project goal is to stabilize a badly eroding stretch of river bank on the South Fork Snake River just above the north bridge on the Archer Highway. | AG | IFRO |
| WW1010 | Middle Bear River Watershed (Mound Valley) | This project involved stabilizing streambanks at two different locations on the Bear River in the Thatcher area. | AG | PRO |

[a] Agriculture (AG), transportation (T), urban or rural stormwater (SW)
[b] Idaho Falls Regional Office (IFRO), Boise Regional Office (BRO), Lewiston Regional Office (LRO), Pocatello Regional Office (PRO), Coeur d'Alene Regional Office (CRO), Twin Falls Regional Office (TFRO)

# Section 3 Project Field Evaluation Reports

DEQ staff traveled to 28 project sites to evaluate and document progress. A number of these evaluations were of active projects. Others were on sites where work was completed several years earlier; the intent for those cases was to assess how well the previously implemented BMPs are being maintained and functioning. The following pages include summaries of the projects that were evaluated in 2017.

- 23 projects addressed NPS water quality issues related to agriculture or grazing.
- 3 projects addressed issues related to transportation.
- 2 projects addressed issues related urban or rural stormwater.

The following pages include summaries of the projects that were evaluated in 2017. More detailed evaluation reports for each project are available from DEQ upon request.

# 3.1 Y and Y9 Drain, Clover Creek (Re-evaluation)

**Subgrant:** S168 **Latitude and Longitude:** 43.00213, -115.17195

**Description:**
This project eliminated a major irrigation drain that discharged into §303(d)-listed Clover Creek, a major tributary to the §303(d)-listed Snake River. The drain water contained significant sediment, phosphorus, and bacteria loads. Return water in the drain is reused for irrigation. The water is diverted from the drain to sprinkler irrigation pivots on nearby fields. Some of the pivots were purchased and installed with funds dedicated to this project. Reusing the drain water reduces the need to draw cleaner water directly from Clover Creek to irrigate and reduces the pollutant load in the return water. Return water is later collected and stored in two 3-acre ponds. Overflow from these ponds is captured in a sink area that helps recharge the local ground water.

**Project Status:**
Return water is no longer discharged directly into Clover Creek. All of the components of the project were functioning as intended and were in good working condition. The drain has been decommissioned and is no longer in use. There is no return flow to monitor.

**Outcome To-Date:**
All phases of the project were completed on time.

The inlet from the Y drain to the storage pond.

A view of the upper storage pond.

The headgate on the lower storage pond is also used to manage releases to the south and east pivots.

Irrigation return flows discharge from a large poly pipe into a storage pond. The storage ponds help recharge the ground water table and the Y9 ditch brings water to lower pastures.

## 3.2 Deep Creek Bank Stabilization (Re-evaluation)

**Subgrant:** S182 **Latitude and Longitude:** 46.91236, -116.91858

**Description:**
This project was designed under the guidance of the Palouse River Tributaries Watershed Advisory Group as called for in the Palouse River tributaries total maximum daily load (TMDL) implementation plan (Idaho Soil Conservation Commission 2009). The project is located on private property in the lower Deep Creek watershed, a critical area for sediment and temperature reduction due to intensive impacts from agriculture, ranching, and residential development. The purpose of the project was to reduce erosion and stabilize approximately 1,900 feet of streambank by resloping and installing approximately 28,500 square feet of variable riparian buffer. Stabilizing the bank will result in decreased sediment, nutrient, bacteria, and temperature loads in the Palouse River from its tributary, Deep Creek. The riparian area will help filter runoff and provide shade, leading to cooler summer water temperatures.

**Project Status:**
Implemented best management practices (BMPs) included resloping and stabilizing the bank, re-establishing a functioning riparian buffer, and installing fencing to exclude livestock from the creek. The exclusion fence was in good condition. Because there is no off-site watering source for livestock, one section of the creek was not fenced to allow cattle access to Deep Creek.

**Outcome To-Date:**
This project has been completed.

The Palouse-Clearwater Environmental Institute established an information kiosk about the restoration project.


Since project completion, vegetation has become established on this mechanically contoured streambank, helping to restore the hydraulic interaction between the creek and floodplain.


Some of the vegetation in the riparian area had been grazed.


Vegetation planted as part of this project was well established, as seen in the growth of ponderosa pines. The project area seen in this picture is the result of completely excluding livestock grazing.

## 3.3 Soldier Creek Rocking (Re-evaluation)

**Subgrant:** S183 **Latitude and Longitude:** 47.18135, -116.47028

**Description:**
The goal of this project was to reduce the sediment load in Soldier Creek, a major tributary to the St. Maries River. The plan included resurfacing 5.9 miles of road adjacent to the creek with new gravel and installing ditches and culverts of the proper design and size to allow fish passage.

**Project Status:**
All culverts were in excellent condition, with inlets and outlets properly rocked, where necessary, and streamside vegetation adjacent to the culverts well established. The road surface installed under the project work plan was in excellent condition and is being well maintained. Most drainage ditches are vegetated and routing any water that comes off of the road surface to nearby culverts, as intended. Some ditches need maintenance, as there was evidence of water backing up in the ditch and flowing overland across the road. However, the road in these areas was being maintained and signs of surface erosion were minimal. The fish ladder was still in place and in good working condition.

**Outcome To-Date:**
The project has been completed.

The surface of Soldier Creek Road remains in good condition, and the adjacent ditches are well vegetated.

A man-made rock ladder constructed in a culvert on a tributary to Soldier Creek allows fish to migrate upstream.

## 3.4 St. Charles Creek Watershed Restoration (Re-evaluation)

**Subgrant:** S189 **Latitude and Longitude:** 42.11907, -111.39367

**Description:**
The goal of the project was to reduce nitrate and phosphate in St. Charles Creek, a tributary to Bear Lake and the Bear River in southeastern Idaho. In the lower reach, the creek splits into two channels identified as the little and big arms. The little arm flows directly into the northwestern portion of Bear Lake; the big arm flows into both Bear River and Bear Lake in a delta-like area at the northern end of the lake. Failing irrigation diversions are causing high sediment loads in the creek and reduced streamflows. No measuring devices are installed at the points where the water is being diverted. Meadows along the creek are grazed and flood irrigated. The meadows become a significant source of nutrients entering the creek as the water recedes.

**Project Status:**
The high water level at the time of the evaluation prevented the group from reaching the area where most of the restoration activities had taken place.

**Outcome To-Date:**
The project has been completed.

A trash rack keeps large debris from entering the fish ladder.

A fish ladder installed on an irrigation diversion allows fish to migrate upstream on St. Charles Creek during the spawning period. The ladder also allows irrigators to regulate the flow at the diversion. The results of erosion at the site can be seen near the downstream side of the structure.

A fence installed along a stretch of St. Charles Creek limits livestock access. Willows are reestablishing themselves in the riparian area and protect the streambank from further eroding. Older, more established willows were observed at the site, easily identifiable by the mushroom-shaped crown that occurs after livestock have foraged on the new growth branches near the base.

Some fish screens were installed to prevent fish from being diverted to irrigated meadows. Boards can be placed in slots in the cement to control the rate at which water leaves the meadow, thereby limiting the erosion that might otherwise occur if the water was not able to be managed.

## 3.5 Flannigan Creek Riparian Restoration (Re-evaluation)

**Subgrant:** S209 **Latitude and Longitude:** 46.87514, -116.92149

**Description:**
Restoration work took place on private properties in the upper Flannigan Creek watershed, near the confluence of West Fork Flannigan Creek and the main stem. The work targeted reductions in sediment, bacteria, nutrients, and temperature, all addressed by the TMDL (DEQ 2005). This project improved riparian habitat through native plantings. Work focused on stabilizing streambanks where active erosion was visible and increasing wetland area in priority locations to collect and filter runoff. Riparian plantings were focused first on areas where vegetation was lost or significantly diminished due to recent fire activity. A total of 1,336 feet of streambank was stabilized and revegetated to reduce erosion. Bank stabilization techniques included excavating, resloping, and installing erosion control fabric. The 330,280-square-foot variable riparian buffer was replanted with native woody, herbaceous, and grass species. An established riparian buffer will serve as a filter to reduce the sediment, nutrients, and bacteria entering the creek from adjacent lands. An established canopy in the riparian area will shade the creek and reduce the water temperature.

**Project Status:**
The banks were stabilized with erosion control fabric and revetment materials. Sites in the riparian area that had no or sparse vegetation were replanted to meet the goals of (1) improving the overall health of the plant community,(2) providing habitat for fish, and (3) improving the riparian canopy. Local wetlands, ponds, and swales were either constructed or enhanced. A diverse group of volunteers from the local area, including students, helped implement the BMPs and complete the project. All of the required BMPs were functioning as intended. Plants were maturing and becoming well established, and the specific sections of streambank that were resloped are now mostly vegetated and stable.

**Outcome To-Date:**
This project has been completed.

The fields along the creek are not grazed or hayed. Streambank vegetation includes ponderosa pine, hawthorn, dogwood, willow, and other species.

The riparian buffer strip and exclusion fencing remains in good condition almost 6 years after the project ended.

A fence was built to restrict livestock access to Flannigan Creek.

## 3.6 Boise River Side Channel Project at Harris Ranch (Re-evaluation)

**Subgrant:** S232 **Latitude and Longitude:** 43.55988, -116.12955

**Description:**
The goal of this project is to improve water quality by re-establishing a functioning riparian corridor. Specifically, the work will restore salmonid spawning and rearing habitat by developing a side channel to the lower Boise River. In addition, the work would restore connectivity between the lower Boise River and Barber Pool, which have been disconnected for nearly a century.

**Project Status:**
The side channel (now called Alta Harris Creek) and riparian restoration objectives are complete. Fish have been observed in the channel and spawning habitat exists in the upper creek. The new channel provides winter refugia and spawning habitat for fish and a well-connected riparian area and wetland habitat. Trout Unlimited volunteers and school kids planted riparian vegetation. Eliminating grazing pressure and planting along the new channel corridor has resulted in a noticeable improvement to fish and wildlife habitat and the hydrologic function in the area.

**Outcome To-Date:**
Efforts to address fish passage and bypass flow were complicated due to a need to first retire the Barber wastewater lagoons. Trout Unlimited remains hopeful that efforts to connect Alta Harris Creek to Barber Pool will continue.

The Harris family donated a 45-foot setback on either side of the new stream channel to Trout Unlimited and the Land Trust of the Treasure Valley for a conservation easement. As a result, the creek will continue to flow within a protected riverfront natural conservation area and 20-acre park.

Four pools were constructed in this stretch of Alta Harris Creek. With the now established riparian foliage, the pools are well shaded to reduce instream temperature and provide refugia for fish in winter. None of these plants existed before the start of the project.

This tall cottonwood tree grew from a stem cutting that was simply pushed by hand into the soil by the creek.

Beaver have moved into the area. Their impoundments provide many benefits to plants, fish, and wildlife.

## 3.7 Mosquito Flats Reservoir Dam Repair (Re-evaluation)

**Subgrant:** S273 **Latitude and Longitude:** 44.52240, -114.43330

**Description:**
This project replaced an undersized and deteriorated culvert with a new, properly sized culvert. Upper Challis Creek may have been impacted at one time by periodic heavy releases of water from Mosquito Flat Reservoir and/or down-cutting caused by runoff discharging from a road culvert. Past records also reference impacts from grazing and diverting water from the creek, which may have altered the creek's ability to move sediment in the watershed. Mosquito Flat Water Users had a plan of operations in place that required the reservoir to only be filled to capacity after periods of high water. Following that protocol would have helped to prevent the need to release large amounts of water from the reservoir at any one time to move sediment built up downstream in the creek. Instead, sediment would have remained in the reservoir. The water users determined a culvert was the main source of down-cutting in the creek. Since the culvert is located on federal land, any related maintenance issues are the responsibility of the US Forest Service.

**Project Status:**
The culvert has been replaced and is functional. The riparian vegetation is thick and thriving.

**Outcome To-Date:**
This project has been completed.

The culvert was replaced and is functioning as intended.


The riparian vegetation along Challis Creek is well established and thriving.

# 3.8 Fish Haven Creek Watershed Restoration (Re-evaluation)

**Subgrant:** S335 **Latitude and Longitude:** 42.03740, -111.41319

**Description:**
The goal of the project was to replace an undersized box cement culvert on Fish Haven Creek. The old culvert had deteriorated to the point that, if it failed, it could severely damage sewer and drinking water lines in the area. The culvert was also a barrier to Bonneville Cutthroat Trout migration upstream to spawn.

**Project Status:**
Trout Unlimited installed a 220-foot-long bottomless culvert. The culvert is in good condition and is functioning as intended.

**Outcome To-Date:**
This project has been completed. Trout Unlimited was present on site during construction to ensure the project was completed as planned.

The new fish-friendly bottomless culvert allows fish to migrate up Fish Haven Creek to spawn. Boulders were placed in the channel to decrease the velocity of the water exiting the culvert and to prevent erosion from occurring further downstream in the channel.

Water from the culvert eventually flows into Bear Lake. Some large head cuts were observed in this section of the creek.

Large rock was placed along the shoreline at this section of the creek to protect a sewer line that crosses under the channel. In the past, the channel bed was scoured and eroded to the point of exposing the line at the bottom of the channel, making it vulnerable to damage and breaking. A drinking water line that crossed under the channel was also exposed for a short time before the project manager restored the stream grade to protect the line.

## 3.9 I Coulee Wetland Project (Re-evaluation)

**Subgrant:** S385 **Latitude and Longitude:** 42.64555, -114.70541

**Description:**
The Balanced Rock Soil and Water Conservation District constructed three sediment retention ponds in a series on the I Coulee. The Coulee includes a return drain for irrigation water coming off nearby croplands. The drain is part of the Twin Falls Canal Company system and discharges to the mid-Snake River, a §303(d)-listed stream impaired by sediment, phosphorus, and *E. coli*. The goal of this project was to reduce sediment and *E. coli* loads to the river by 45%–60% and 40%–55%, respectively.

**Project Status:**
Sediment is being removed from the lower ponds by the Twin Falls Canal Company and used on site. The integrity of the upper ponds was compromised due to the high discharges in spring 2017. The ponds were repaired before the irrigation season began.

**Outcome To-Date:**
The project has been completed. Ownership of the land containing the ponds has changed since the original agreement was signed. DEQ is researching the effect this change may have on future site access and other arrangements that had been agreed to in the original subgrant and associated documents.


The inlet discharges into the upper cleaning cell.


This cell is the second in the series of three cells.


The middle cleaning cell discharges to the third and final cell in the series


At the end of the series of three cleaning cells, decidedly cleaner irrigation water enters the I Coulee and eventually the mid-Snake River.

# 3.10 South Fork Clearwater River Watershed Native Vegetation Establishment Project (Re-evaluation)

**Subgrant:** S394 **Latitude and Longitude:** 46.03173, -115.97481

**Description:**
Multiple private landowners partnered with DEQ on this project to improve water quality by reducing the sediment load and temperature in the South Fork Clearwater River. Both sediment and temperature are pollutants addressed in the TMDL (DEQ at al. 2004). Other tasks in the work plan were aimed at reducing bacteria and nutrient loads and improving fish habitat.

**Project Status:**
BMPs implemented on this project were aimed at increasing bank vegetation and channel stabilization, installing contour buffer strips, and managing drainage water. Many of the BMPs were successfully implemented. At one project site, newly planted vegetation was not as successful as the project sponsor had hoped. DEQ believes the plantings failed because of poor plant stock quality, an inadequate watering regime, competition with other vegetation, or attempting to establish plants on a site with shallow soils.

**Outcome To-Date:**
This project has been completed. All tasks listed in the project work plan have been satisfied.

Plantings stabilized the shoreline along the contoured riverbank.

Most of the plantings in the riparian area were successful and have become well established as they matured.

This bank was stabilized by changing the contour of the site and planting the area with different types of native vegetation.

## 3.11 Daniels Reservoir Sediment Reduction (Re-evaluation)

**Subgrant:** S402 **Latitude and Longitude:** 42.35697, -112.44648

**Description:**
The goal of the project was to reduce the amount of sediment being discharged into nearby water bodies by constructing sediment basins, terraces, and livestock watering systems. Terracing dry cropland decreases the likelihood of sediment coming off the fields during major storm events and entering nearby water bodies. Similarly, excavating basins in strategic areas allows sediment-laden runoff from upslope fields to be directed to the basins rather than flowing into nearby surface water. New water systems resulted in livestock moving away from the stream channel and upslope to water. Watering upslope reduces damage caused by livestock that would otherwise enter the channel and also results in less sediment entering the water. Additionally, livestock would much prefer to water at an upslope source rather than the stream itself.

**Project Status:**
Water and sediment basins, terraces, and livestock watering systems were installed and are being maintained. The basins and terraces are functioning well and serving to keep sediment from entering nearby surface waters. Evidence of their success was observed in some basins that were full or near full and in need of maintenance. The livestock watering system has kept stock away from the streams, evidenced by the banks showing signs of healing with new growth of riparian vegetation.

**Outcome To-Date:**
The project has been completed.

This field was planted in permanent cover with grass and sanfoin. It is tilled annually to reduce the amount of erosion on the field. Sagebrush is also becoming established in the field.

A sediment basin was excavated to reduce the length of the slope on the field. Shortening the slope reduces the amount of energy in the runoff water, which in turn lowers the amount of sediment that can be transported in the runoff.

The four sediment basins that were excavated in this field serve to reduce the energy level of the runoff. Before the basins were built, water running off of the field would create a large gulley further down the drainage.

## 3.12 American River, Elk Creek, Big Elk Creek Water Quality Improvement—Phase II (Re-evaluation)

**Subgrant:** S406 **Latitude and Longitude:** 45.80676, -115.43990

**Description:**
American River, Elk Creek, and Big Elk Creek are all listed on the §303(d) list and designated within the *South Fork Clearwater TMDL Implementation Plan* as high priority for TMDL development (South Fork Clearwater River WAG 2006). These tributaries contribute pollutants to the South Fork Clearwater River watershed. The South Fork Clearwater Watershed Advisory Group (WAG) unanimously supported efforts to begin implementing BMPs aimed at reducing sediment, nutrient, bacteria, and temperature loads. The riparian restoration component of the project focused inside the riparian barrier, attempting to reduce bank erosion along two degraded sections of Big Elk Creek. Work included planting native trees and shrubs, sedges, and grasses to help reduce sedimentation and lower the stream temperature.

**Project Status:**
Work on this project took place on two private properties and a short segment of a Bureau of Land Management exclusion area located in the mid and lower Big Elk Creek meadow. This project improved 15,480 feet of riparian habitat. The riparian restoration component of the project aided in reducing erosion by stabilizing and revegetating approximately 355,500 square feet of variable riparian buffer on two degraded sections of Big Elk Creek. The project also stabilized and revegetated 7,920 feet of bank to reduce erosion. Stabilization techniques included installing coir log and large woody debris.

**Outcome To-Date:**
This project has been completed.

Livestock exclusion fencing was installed in the Big Elk Creek meadows.

An off-stream water source was installed as part of the project.

Banks stabilized over time as a result of various plantings. A fence was constructed to keep livestock away from the creek.

This fencing was built and installed by Framing Our Community as part of the project.

# 3.13 Little Salmon River Watershed Riparian Restoration (Re-evaluation)

**Subgrant:** S433 **Latitude and Longitude:** 45.07912, -116.30320

**Description:**
This project protected and restored native riparian habitat along the Little Salmon River and its tributary, East Fork Goose Creek. Project goals were to reduce sediment and nutrient pollutant loads and promote restoration and conservation efforts through partnerships with private landowners and volunteers. Restoration efforts treated roughly 1.4 miles of streambank in the watershed.

**Project Status:**
The Idaho Department of Fish and Game (IDFG) improved, restored, and managed riparian habitat on private lands located along the Little Salmon River and its tributaries. As part of its effort, IDFG planted, fertilized, and watered native trees and shrubs along the river.

**Outcome To-Date:**
The project was successfully completed in 2016.

Since 2015 when this site was last planted, evidence exists of elk, deer, and bear grazing in the area. Little plant growth was evident because much of the ground cover had been heavily trampled. This property is in the 15th year of a 30-year contract with the Natural Resources Conservation Service (NRCS) under its Wetland Reserve Program. With NRCS approval, IDFG may be allowed to return to the area with the T-posts needed to protect cottonwoods.

Over the last 15 years, IDFG has tried several different methods to plant vegetation along the Little Salmon River. The skidsteer and dingo auger methods that involve drilling 4-foot holes for willows have both been very successful. Because of the planting depth using these methods, later hand watering is not required. The willows in this picture were planted in 2015.

Reed canary grass, which has inundated the area, provides some stabilization but is not ideal for soils that may see higher flows. The willows in this photograph are strong suckering or rhizomatous species. Their roots have found their way to the bare riverbank and will provide stabilization at higher flows.

This image shows good planting design. The toe and high bank zones are planted in a way that will reduce the chance of water eroding behind the plantings. Outside river bends are more susceptible to erosion from streamflow, so planting the entire reach provides a continuous barrier.

# 3.14 Mud Creek/Silo Creek Water Quality Project (Re-evaluation)

**Subgrant:** S444 **Latitude and Longitude:** 42.59150, -114.81196

**Description:**
This project involved constructing a series of sediment retention ponds. Three cleaning cells (averaging 12 x 50 meters) were built close to two large finishing ponds (roughly 25 x 45 meters and 25 x 25 meters) that were excavated approximately 350 meters downgradient. A 20-year conservation easement on the 6-acre site was negotiated with the landowner. The easement included an agreement to cost share on the purchase and install a center pivot irrigation system to be located on 80 acres adjacent to the wetland complex. The Twin Falls Canal Company's I-6 drain (part of the I Coulee) enters Silo Creek above the 2011 Boulder Ridge Ranch Wetland §319 project, making this latest project part of a larger scale effort in the watershed. The I Coulee drains approximately 10,000 acres of irrigated cropland in western Twin Falls County. The landowner and the Twin Falls Canal Company have agreed to maintain the ponds as needed.

**Project Status:**
The cleaning cells are being maintained as needed. The sediment removed from the ponds is used as fill at other locations. The lower finishing ponds appear to have matured based on the various species of macrophytes and grasses observed. The pivot sprinkler system was operating and in good condition. The system will be used throughout the growing season. Parts of the irrigation system were retrofitted to include drop sprinklers.

**Outcome To-Date:**
The project was completed as planned and is currently fully functioning and stable.

This view shows the I-6 drain inlet and an upper cleaning cell.

Irrigation water enters the lower cleaning cell.

Grass around the finishing ponds and cattails in the ponds are thriving.

An irrigation pivot system was installed on a nearby field as part of the project.

# 3.15 Cold Springs Creek Riparian Restoration (Re-evaluation)

**Subgrant:** S458 **Latitude and Longitude:** 43.24493, -115.42069

**Description:**
The main goal of the project was to maintain and improve water quality in Cold Springs Creek. The two primary objectives were to reduce sedimentation by reducing streambank and channel erosion and develop, implement, and administer a BMP evaluation and environmental stewardship program to determine the effectiveness of the BMP activities and promote their long-term use.

**Project Status:**
The Elmore Soil and Water Conservation District implemented riparian BMPs on a 3.2-mile segment of the West Fork Cold Springs Creek and upland BMPs on portions of the 2,885 acres of rangeland that drains into the creek. At this stage of the project, brush management was the sole remaining BMP to be implemented. Native grasses and forbs were found to be more effective at holding soil in place. Meeting this objective required beating down the brush, planting well-adapted and desirable perennial range vegetation, and implementing prescribed grazing. The district followed “A management strategy that promoted maintaining an adequate height and density of perennial grasses and forbs, such that a positive effect on sage-grouse nesting and brood-rearing habitat would result” (Gillan and Strand 2010).

**Outcome To-Date:**
To date all BMPs for this project were satisfactorily completed and the subgrant was closed out.

Mechanical methods were used to manage brush in areas where inventories of brush communities were higher than recommended in the ecological site description. Brush was managed to control targeted woody species and to protect other desired species. Managing the land in this manner leads to improved conditions for wildlife habitat and for species that are more desirable for grazing. The landowner implemented this BMP on over 71 acres of the Cold Springs Creek watershed.

Properly managing brush is expected to mitigate soil erosion, improve soil conditions and livestock production, and enhance water quantity and quality in the watershed These expectations are based on the assumption that herbaceous ground cover will increase after brush management work has been completed. As shown in this picture, understory forbs have an opportunity to be productive as a result of managing the woody species on the land. Additional practices, such as applying herbicides on the site to limit the regrowth of undesirable sagebrush and lupine species, could result in increased forb productivity.

# 3.16 Potlatch River Watershed Management Plan—Phase V Implementation

**Subgrant:** S491 **Latitude and Longitude:** 46.85000, -116.40000

**Description:**
The Potlatch River Watershed Management Plan was designed with two goals in mind: (1) improve water quality and (2) restore Endangered Species Act-listed steelhead habitat in prioritized subwatersheds throughout the Potlatch River system (RPU 2007). BMPs were selected to address a multitude of habitat and water quality issues and address the water quality concerns associated with nonpoint source pollution within the *Potlatch River Subbasin Assessment and TMDLs* (DEQ 2008) and the *Potlatch River Subbasin Total Maximum Daily Load Implementation Plan for Agriculture* (ISCC 2010).

**Project Status:**
Implemented BMPs included streambank vegetation, channel stabilization, critical area planting, stream habitat improvement and management, tree/shrub establishment, and wetland/meadow restoration. All BMPs have been implemented. The effectiveness of the BMPs will be evaluated seasonally after spring runoff has ended.

**Outcome To-Date:**
The majority of the tasks in the work plan have been completed. Those tasks remaining at the time of evaluation were to be completed by the end of 2017.

A culvert was installed on the project site.

One task involved redirecting the river from its current location to its historic, more sinuous channel.

A ditch was plugged, and vegetation was planted to prevent erosion at the site.

Artificial beaver dams were constructed in the river's meadow reach to help decrease water temperature and capture sediment.

## 3.17 Mica Creek Sediment Reduction Project (Swendig Property) (Re-evaluation)

**Subgrant:** S498 **Latitude and Longitude:** 47.59940, -116.86880

**Description:**
During a 2012 high-water event, 300 feet of bank collapsed into Mica Creek, and numerous alder trees uprooted and fell into the channel. The channel became partially blocked, increasing water velocity and the rate of lateral erosion of the newly exposed bank. This project removed the collapsed vegetation from the channel and 250 feet of bank, reshaped and stabilized the bank, and replanted the affected area with willows.

**Project Status:**
The 250 feet of rock-armored streambank remains completely stable. No failures of the rock armoring were observed. Willow plantings are growing nicely along the entire length of bank. Alders have recruited and are quickly becoming re-established in the area.

**Outcome To-Date:**
The project has been completed.

New willows were planted to help stabilize the streambank.

The streambank has new, maturing riparian vegetation (looking downstream).

Looking upstream, the streambank is stable with established riparian vegetation.

# 3.18 Alder Creek Road Improvement Project (Re-evaluation)

**Subgrant:** S520/542 **Latitude and Longitude:** 47.22451, -116.66698

**Description:**
The original project improved drainage and the surface on a 2-mile section of Alder Creek Road. The road surface had severely eroded and combined with noticeable drainage problems was becoming a significant source of sediment to Alder and Carlin Creeks. The Benewah Soil and Water Conservation District installed new relief culverts and widened and resurfaced the road with new gravel to reduce sediment loads to the creeks. Nearing completion of the project, the district took advantage of new §319 funding that provided an additional 2.7 miles of road resurfacing with a new base and top rock, along with eight new culverts. The project work plan included an information and outreach component to educate the public about the project.

**Project Status:**
Project BMPs included resurfacing and widening the road, replacing culvert, and installing new relief culverts. The work was conducted under an EPA Construction General Permit and the guidelines in a Stormwater Pollution Prevention Plan (SWPPP). Rock armoring was installed on culvert inlets and in drainages, as needed. DEQ's inspection revealed that the road surface was in excellent condition, and the drainage ditches were well-maintained and rocked, where necessary. The rock armoring used on culvert inlets and drainages was effectively keeping sediment from entering the culverts.

**Outcome To-Date:**
The project has been completed.

Before project implementation, Alder Creek Road was in poor condition.

The project included resurfacing and widening the road, along with installing new or replacement culverts.


The public was informed of the project with signage along the roadside and inside the county courthouse.

A DEQ field evaluation concluded that project BMPs, such as this culvert, were properly installed and maintained.

## 3.19 Weiser Flats Wetlands Project—Phase III (Re-evaluation)

**Subgrant:** S522 **Latitude and Longitude:** 44.27871, -117.20413

**Description:**
This project directed irrigation water from fields through a constructed wetlands system to reduce the amount of phosphorous, sediment, and nitrate in the water before entering the Snake River downstream of the site. Two wetland complexes—the Warm Springs/Galloway and the Smith Hemmenway/Grimmet—reduce pollutant loads through retention and phytoremediation.

**Project Status:**
Construction of the Warm Springs/Galloway Wetland was completed in 2016 to treat a portion of the flow from the Galloway Canal. This project involved installing a primary and secondary pond with an overflow pipe connecting the two and inlet and outlet structures and reseeding disturbed areas. Both ponds have been seeded with native plants to help with nutrient uptake. Growth in this first year is slow, but over time the vegetation is expected to thrive and mature.

**Outcome To-Date:**
The wetlands are now fully installed, and the subgrant has been closed out. The wetland has matured well since DEQ's last site visit.

A horseshoe-shaped wetland was constructed north of the Galloway Drain. Water in an upper settling basin can overflow into the wetland to further settle sediment and reduce phosphorus loads.

Water at the intake off the Galloway Canal feeds the horseshoe-shaped pond.

Sediment from irrigation water is retained in the settling pond at the Smith Hemmenway Wetland before cleaner water overflows into the main pond. The Weiser Irrigation District removes sediment that accumulates in the pond and inlet over time as needed.

Since DEQ's 2015 site visit, these common arrowhead plants have emerged. Arrowhead typically thrives well in shallow water and are effective in taking up contaminants.

# 3.20 Cocolalla Lake Habitat Segment Restoration Project (Re-evaluation)

**Subgrant:** S525 **Latitude and Longitude:** 48.10650, -116.62467

**Description:**
Sediment and nutrient loads to Cocolalla Lake are addressed in the Cocolalla Lake TMDL (DEQ 2001). Fish Creek, a tributary to the lake, is identified as contributing 10% of the nutrient load and 24% of the sediment load to the lake. This project restored the wetland function to more than 90 acres of former agricultural property at the mouth of Fish Creek on the southern end of Cocolalla Lake. Fish Creek was reconnected with its floodplain to allow sheet flow across the property. Flow from the railroad drainage ditch was redirected into the Fish Creek channel. Shallow water wetland developments (wildlife ponds) were constructed to slow and direct flow across the property and to increase wetland habitat diversity. These efforts will improve water quality in Fish Creek and Cocolalla Lake by decreasing sediment and nutrient loads, removing pollutants discharged into the wetlands, and recharging the shallow aquifer to extend and cool the perennial flow in Fish Creek. The project will improve wildlife habitat by providing a diverse cover of native wetland plants like sedges, forbs, and woody shrubs.

**Project Status:**
Six ponds were constructed and the creek was reconnected with its original floodplain. The Fish Creek channel has revegetated nicely. Banks are stable with evidence the channel is naturally meandering. Rock weirs were constructed in areas where grade control was most needed. Reed canary grass control, primarily with herbicides, is ongoing. In 2017, approximately 7 acres of canary grass was tilled as another control measure. An excellent amount of natural recruitment of upland and wetland plants as been observed on the site.

**Outcome To-Date:**
The project has been completed.

The natural recruitment of riparian vegetation could be seen on a pond constructed as part of the project.

The Fish Creek channel banks have been stabilized. The left bank shows an attempt to control reed canary grass.

Approximately 7 acres of undesired reed canary grass was treated with an herbicide and tilled for maximum desiccation of the plant rhizomes. In time, this site will be planted with a mix of native grasses to outcompete the reed canary grass.

# 3.21 Owyhee Restoration Incentive Program

**Subgrant:** S534 **Latitude and Longitude:** 42.64645, -116.94541

**Description:**
The Owyhee Watershed Council plans and implements projects that benefit the land, water, and wildlife of the Owyhee subbasin. The council provides technical and financial assistance to landowners who have identified projects that will improve water quality and meet the goals in the water body assessments and TMDLs. Under the terms of this subgrant, the council recruited eligible projects meeting its goals.

**Project Status:**
Seven projects received funding under this subgrant. One project was fully implemented at the time of this evaluation. Because of personnel changes, the six remaining subprojects were put on hold. The Pickett Piping and Off Stream Watering Project has been completed to date. This project included piping approximately 4,000 linear feet of open irrigation delivery ditch from the diversion on Pickett Creek to an existing pivot system. Since the new piping system was installed, sediment-free water from Pickett Creek flows in the pipe to the end pond. In addition, the landowner installed two watering troughs to pull cattle off Catherine Creek. A new trough pipeline ties into an existing trough system creating a three-trough pipeline. Using off-stream water sources will reduce streambank erosion and nutrients to the creek and improve riparian vegetation.

**Outcome To-Date:**
No deficiencies were noted while on site. Concern was shared regarding project implementation due to recent personnel turnover. However, the council expects that all §319 funds will be allocated before the subgrant expires.

In phase 1 of the project, approximately 1 mile of open irrigation ditch was retrofitted with a pipe that will carry water from a diversion on Pickett Creek (located in the row of trees in the background) to the gate structure seen in this picture.

This photo shows the existing diversion on Pickett Creek.

The new pipeline ties into the inlet of an existing pipeline at a site just below the diversion at Pickett Creek.


Two new tire troughs connect to an existing trough to provide fresh water to the site. The three troughs are now connected by approximately 3,000 feet of 1.25-inch polyvinyl chloride pipe that is in a trench located along an existing access road.

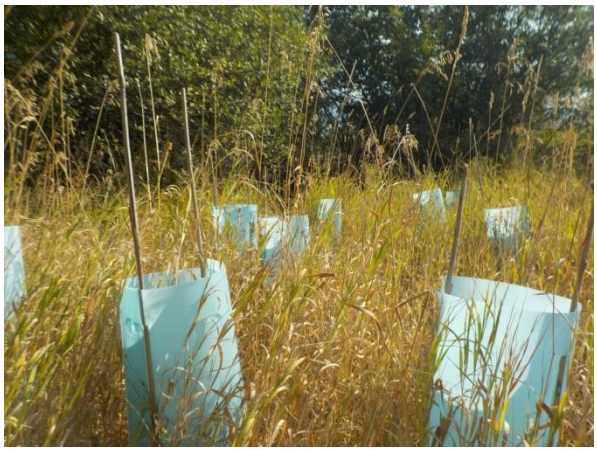
# 3.22 Addressing Temperature Issues in Threemile Creek

**Subgrant:** S535 **Latitude and Longitude:** 45.93204, -116.13509

**Description:**
This project addressed the South Fork Clearwater River TMDL (DEQ at al. 2004) and issues brought forward in an earlier report on the water temperatures in Threemile Creek (DEQ 2013). Located along Threemile Creek in and around the Grangeville community, this project focused on planting riparian buffers of native trees and shrubs to shade the creek and reduce the solar load to the creek. Increased shade will decrease summer water temperatures, a time of year critical to the survival of cold water species such as steelhead and salmon. An established riparian buffer strip will also help stabilize the streambank; reduce sediment, nutrient, and bacteria loads to the river; and provide wildlife habitat.

**Project Status:**
The BMPs implemented included stream channel vegetation, conservation cover, critical area planting, pest management, restoration and management of declining habitats, riparian forest buffer establishment, and stream habitat improvement. All of the listed BMPs had been implemented. The effectiveness of some practices cannot be determined until time has passed, and the vegetation has matured. Some of the established plantings were facing competition from undesirable grasses.

**Outcome To-Date:**
All of the tasks have been completed.



The woody vegetation planted in the riparian area was protected with hard plastic guards to prevent wildlife from grazing on the new starts.

Threemile Creek flows through Grangeville.

Rocky Mountain maple (*Acer glabrum*) was one of the species planted along the banks of Threemile Creek.

Some maples were planted in areas along the creek with well-established communities of grasses and shrubs.

# 3.23 Tom Beall Creek Restoration

**Subgrant:** S537 **Latitude and Longitude:** 46.43810, -116.74316

**Description:**
The project site is located approximately 2.7 miles upstream of the confluence of Lapwai Creek and the Clearwater River. Tom Beall Creek is a tributary of Lapwai Creek. The site was channelized in the early 1900s and riparian vegetation removed to advance agricultural production. This project implemented BMPs on 1 mile of riparian area and 0.25 acres of wetland and focused on numerous fish habitat and water quality issues. A combination of bare root, dormant stakes, and rooted riparian plants were planted to connect existing forested areas. Native Idaho fescue and bunch grasses were seeded in areas that were previously cropland but later planted with trees and shrubs. This newly established stream buffer will intercept overland flow from upland agricultural fields. When mature, the trees will create a canopy over the stream that will reduce solar input and stream temperature. Large woody debris was placed in the stream to improve habitat conditions and variability. Better habitat, a reconnected floodplain, protecting the wetland, and improving hydrologic functions are all other benefits of this project.

**Project Status:**
Riparian planting, invasive weed control, rock crossing (ford), and wetland construction were completed. The success of riparian plantings was low. A severe infestation of invasive weeds was observed on several areas of the site.

**Outcome To-Date:**
The project is ongoing and is on schedule to be completed by the subgrant expiration date of December 31, 2018.

This wide-angle view is looking upstream in the Tom Beall drainage.

A rock crossing was constructed on site.

Riparian plantings are aiding the restoration effort along the left bank of the stream. Agricultural practices are taking place upslope of the stream.

A weed mat was placed in the riparian area before planting. Weed control is essential for the survival and rapid growth of the trees and shrubs planted.

# 3.24 Bloomsburg Road/Coeur d'Alene Lake Management Plan Sediment and Nutrient Reduction Project (Re-evaluation)

**Subgrant:** S538 **Latitude and Longitude:** 47.41876, -116.79712

**Description:**
The goal of this project was to improve the road surface and drainage on 1.5 miles of Bloomsburg Road on the Coeur d'Alene Tribe Reservation. The road had a steep gradient and was in poor condition due in part to severe surface erosion and drainage problems caused by an undersized culvert and overall lack of relief culverts to effectively drain this length of road. Ongoing erosion of the road surface and adjacent areas resulted in a significant sediment load delivered to Bloomsburg Bay in Coeur d'Alene Lake. Project work included replacing culverts, installing additional relief culverts, and rocking the drainage ditch along both sides of the road.

**Project Status:**
Three undersized culverts were replaced. The new culverts were determined to be working effectively by handling the large amount of water that resulted from the significant snowmelt of spring 2017. Nine new culverts are providing drainage relief and working as intended. Revegetation occurred at 11 construction sites. The new vegetation is establishing itself in the areas where the plantings took place. Rock-armored culvert outlets were installed correctly and working effectively.

**Outcome To-Date:**
The project has been completed.

Before starting the project, Bloomsburg Road was in poor condition. Problems with drainage and erosion resulted in significant amounts of sediment deposited in the lake.

The surface of Bloomsburg Road was improved during this project.

This relief culvert with rock armoring below the outlet was installed as part of the project.

To reduce erosion, the Worley Highway District lined the drainage ditches along the road with rock.

## 3.25 Upper Blackfoot AFOs

**Subgrant:** S540 **Latitude and Longitude:** 42.58359, -111.31382

**Description:**
The goal of this project was to reduce the amount of sediment, phosphorus, and nitrogen in the main stem Blackfoot River, Meadow Creek, Grave Creek, Grizzly Creek, and Blackfoot Reservoir. Project activities include reducing the amount of livestock-induced streambank erosion by shaping streambanks, planting willows, planting sedge mats, excluding livestock from riparian areas receiving heavy use, and installing off-stream watering facilities.

**Project Status:**
BMPs included spring development, pipeline, troughs, heavy use protection, storage tanks, and a solar pumping plant. All BMPs were observed to be in use and operating as intended.

**Outcome To-Date:**
This project has been completed.

This livestock water gap will be fenced to exclude cattle from damaging the bank. The bank will later be restored as part of the project.

A solar pump draws water from a well to a storage tank to create an off-stream water source for livestock. Providing alternate sources of water help to keep livestock from damaging banks and channels while watering in the stream.

Old tires can be used as livestock water troughs. Floats are used to control the level of water in the trough and escape ramps allow birds and small animals to exit the trough after watering. The thick rubber tires help prevent leaks from gunshots and damage from vandalism that might occur.

Hillside storage tanks provide gravity flow to fill downslope water troughs. In most cases, a consistent source of water keeps grazing livestock from watering in nearby streams and damaging the streambank and streamside riparian area.

## 3.26 Thomas Fork AFOs

**Subgrant:** S545 **Latitude and Longitude:** 42.38609, -111.04567

**Description:**
The goal of this project is to reduce the amount of nutrient and sediment discharged to Preuss Creek and the Bear River from nearby ranching operations. The Bear Lake Soil and Water Conservation District will relocate a beef calving facility located close to the creek to a more distant upslope location, expand the holding capacity of a dairy waste storage facility, and stabilize an eroding stretch of Preuss Creek bank.

**Project Status:**
Funding was just recently made available to the project manager to begin work on the project. The project is currently in the design phase. The district was scheduled to begin implementing BMPs in July 2017.

**Outcome To-Date:**
The project is ongoing and is on schedule to be completed on time.

The district plans to repair the berm behind the calving shed. A small set of corrals will remain near the shed, but fencing will be installed to restrict livestock from accessing the stream. An off-stream water source will be developed. The large water gap seen in the picture was used at one time to funnel cows from the pasture into the corrals. The district plans to fence off the gap to prevent livestock from entering the stream at this location.

The district intends to develop a plan to reduce the high level of erosion that occurs along this bank. The stream currently undercuts the bank causing large areas of soil to collapse into the stream. The plan calls for installing large rock along the toe of the bank and barbs or J hooks to relieve the lateral pressure on the bank.

Livestock waste will be captured in this storage pit, preventing the waste from flowing downhill into the creek. In time, the waste will be excavated and hauled to other locations where it can be applied to cropland at the correct rate.

Cement pads will be installed to allow the landowner to scrape livestock waste directly into the storage pit. The pad will eliminate the problem of wastewater settling in low spots and eventually leaching excess nutrients into the ground water.

# 3.27 South Fork Snake River Bank Stabilization

**Subgrant:** S547 **Latitude and Longitude:** 43.40403, -111.45324

**Description:**
Trout Unlimited's goal is to stabilize a badly eroding stretch of river bank on the South Fork Snake River just above the north bridge on the Archer Highway. Trout Unlimited will be implementing a number of specially designed water deflecting weirs that will direct the river away from bank, providing enough time for the bank to stabilize and be restored. Five weirs will be constructed with large rock keyed into the bank every 300 feet. Additional large rock will be placed at the toe of the bank in the area between weirs. Woody vegetation will be planted to further enhance stability. This length of bank will be beveled back and benched to different heights to provide an area where additional rock and woody vegetation can be placed to further reinforce the bank. The land at the very top of the bank will be graded and seeded to provide access to the site for routine maintenance and to establish a good mixture of sod-forming grasses.

**Project Status:**
Five water-deflecting weirs were installed, each consisting of large rock and a 70-foot length of cottonwood tree, complete with its root wad protruding from the bank. The toe of one weir has started to degrade due to high flows. Willow and cottonwood trees and grasses were planted throughout the project site. The vegetation is well established and growing, without the use of applied irrigation. The bank was beveled back with benches created at different heights to make areas for additional rock and woody reinforcement to be placed, as needed.

**Outcome To-Date:**
Trout Unlimited requested and DEQ approved a no-cost time extension for the project.

One rock weir has been undercut and is degrading as a result of high flows.


Willow and cottonwood trees and riparian grasses look to be well established and thriving in the rocky soil.

The bank in the project stretch was beveled back and benches were constructed at different heights to provide more area to place additional rock and woody reinforcement, if necessary.

The beveled banks help to stabilize the slope and are a great improvement over the steep banks that can be seen at the top of this photograph.

# 3.28 Middle Bear River Watershed (Mound Valley) (Re-evaluation)

**Subgrant:** WW1010 **Latitude and Longitude:** 42.40311, -111.72544

**Description:**
This project involved stabilizing streambanks at two different locations on the Bear River in the Thatcher area. Five barbs were installed at one site. Several willows were observed growing well where the barbs were keyed into the bank. Three barbs were installed at a second site, secured in place by toe rock. Willows and sedge mats were planted or laid along the bank. A temporary fence was constructed along the river to keep livestock from grazing on and around recent plantings.

**Project Status:**
Barbs were installed at several locations, and the riparian area received new plantings, all as part of the effort to restore the streambank.

**Outcome To-Date:**
The project has been completed.

The bank was sloped and seeded, and sedge mats were transplanted to the water's edge. The Franklin Soil and Water Conservation District will treat weeds at the site once the woody vegetation gets larger and better established.

The success of plantings along the bank is evident. The plantings have helped reduce the level of active erosion previously observed.

Toe rock was placed along the streambank to help keep the bank from further eroding while the new vegetation is getting established. Willows can be seen growing among the rocks.

A rock barb was installed at one of the sites to help reduce the rate of erosion.

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